

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: LEE, Chien-Hsiung;

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EXAMINER: Cocks, J.C.

TITLE: PASSIVE ENERGY SAVING SYSTEM FOR A BUILDING

AMENDMENT "A"

Director of the U.S. Patent
and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action of November 16, 2004, a response being due by February 16, 2005, please consider the following remarks:

REMARKS

Upon entry of the present amendments, previous Claims 1 - 20 have been canceled and new Claims 21 - 40 substituted therefor. Reconsideration of the rejections, in light of the forgoing amendments and present remarks, is respectfully requested. The present amendments have been entered for the purpose of placing the claim language into a more proper U.S. format and for the purpose of more clearly distinguishing the present invention from the prior art.

In the Office Action, it was indicated that Claims 1, 2, 7 - 9, 11, 13 - 15, 17, 19 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Vandenberg patent in view of the

Hutchins patent. Claims 3- 6, 10 and 16 were rejected as being obvious over the Vandenberg patent in view of the Hutchins patent and further in view of the Cayce patent. Claims 12 and 18 were rejected as being obvious over the Vandenberg patent in view of the Hutchins patent and further in view of the Gaydos patent.

As an overview to the present reply, Applicant has extensively amended the original claim language in the form of new claims 21 - 40. New Claims 21 - 40 express the original limitations of Claims 1 - 20, respectively, but have modified language so as to conform the claims to a proper U.S. format, including proper antecedent bases and proper structural interrelationships throughout. In particular, where a functional language is recited within the claims, proper “means-plus-function” terminology is included within these claims. Additionally, the “building” is now positively recited such that the claims referring to the location of the various components within the “building” are definite. In particular, it is now recited that the first pipeline “means” is for “transferring the cooling water between the heat exchanger and the first reservoir”. The heat-absorbing board “means” is for “absorbing air heat in said building by using a fluid”. The second pipeline “means” is “for transferring the fluid between said heat exchanger and said heat-absorbing board means”. Applicant respectfully contends that the functional recitations serve to distinguish the present invention from the prior art combination.

In particular, in the present invention, the passive energy saving system includes a heat-absorbing board means, located in the building, for absorbing heat of the air within the building by using a fluid so as to remove heat from the building. In addition, the circulation of the fluid in the system is passive.

The Vandenberg patent discloses a heat transfer system including a collector 2, discharge heat exchangers 12a, 12b, 12c and 12d, a compressor-pump 14, and evaporator 22, a heat storage tank 30 along with pipelines 11 and 13. The heat transfer system uses the compressor-pump 14 to circulate water, i.e. the circulation of water is not passive. In other words, the heat transfer system in the Vandenberg patent cannot work without the compressor-pump 14. In contrast, the circulation of the fluid and the heat-absorbing board is passive in the present invention.

In the Vandenberg patent, heat is adsorbed by the collector 2 and is discharged from the bottom of the accumulator 10 where hot water flows to remote regions of the building where useful heat is discharged (by the discharged exchangers) and the cooled water is returned to the compressor-pump 14 which returns it to the top of the collector 2 for reheating and the next cycle. This feature was recited in column 6, lines 42 - 60, as follows:

The direction of fluid flow through the first heat transfer loop associated with the collector and accumulator is now described with reference to FIG. 1. Hot water line 11 leads from the bottom of the accumulator 10 through a series of discharge heat exchangers 12a, 12b, and 12c, thence through pump cold feed water line 13 on through compressor-pump 14, pump discharge line 16, on through a fourth discharge heat exchanger 12d, return line 17 to the collector inlet line 4; then, turning again to FIG. 2, into collector top header 5, on down through collector channels 7, into collector bottom header 5a, and, thence, back to accumulator 10 by means of collector bottom hot liquid outlet 6a and accumulator return line 9 to complete the heat transfer loop. Hence, heat is absorbed by collector 2, transferred to accumulator 10 to heat the water therein, discharged from the bottom of the accumulator where the hot water flows to remote regions of the building where useful heat is discharged and the cooled water returned to the compressor-pump which returns it to the top of the collector for reheating in the next cycle.

In other words, the heat transfer system in the Vandenberg patent is used to add heat into the building. This is direct contrast to the teachings of the present invention.

Even if the heat transfer system, as recited in the Vandenberg patent, is modified so as to be incorporated with the heat absorbing board/cooling evaporator 34 in the Hutchins patent to replace the accumulator 10, the modified heat transfer system will absorb heat from the air in the building by the evaporator 34 and simultaneously discharge heat into the building by the heat exchangers 12a and 12b. As a result, the modified heat transfer system cannot work. As such, there would be no teaching, suggestion or motivation for one having ordinary skill in the art to combine the Vandenberg patent with that of the Hutchins patent. On this basis, Applicant respectfully contends that Claims 21, 22, 27 - 29, 31, 33 - 35, 37, 39 and 40 corresponding, respectively, to Claims 1, 2, 7 - 9, 11, 13 - 15, 17, 19 and 20 are non-obvious over the prior art teachings of the combination of the Vandenberg and Hutchins patent. Since the independent Claims 1 and 15 are non-obvious over the Vandenberg patent in view of the Hutchins patent, Applicant respectfully contends that dependent Claims 3 - 6, 10 and 16 would similarly be non-obvious over this prior art combination. Similarly, since independent Claims 21 and 35 are non-obvious with respect to the Vandenberg and Hutchins combination, dependent Claims 12 and 18 should similarly be non-obvious.

Applicant has amended the claim language so as to positively recite the “building”. Since the various elements of the independent claims are referenced to the location of the various components within the building, it was necessary to recite the building so that the remaining claims would find their proper antecedent basis therein. The preamble language for “a building” has been deleted from each of the claims herein. The functional language contained within the original claims is now properly recited herein in view of the “means-plus-function” terminology.

Based upon the foregoing analysis, Applicant contends that independent Claims 21 and 35 are now in proper condition for allowance. Additionally, those claims which are dependent upon

these independent claims should also be in condition for allowance. Reconsideration of the rejections and allowance of the claims at an early date is earnestly solicited. Since no new claims have been added above those originally paid for, no additional fee is required.

Respectfully submitted,


John S. Egbert
Reg. No. 90,627
Andrew W. Chu
Reg. No. 46,625
Attorney for Applicant
Harrison & Egbert
412 Main Street, 7th Floor
Houston, Texas 77002
(713)224-8080
(713)223-4873 fax

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